

IN THE CLAIMS:

- 1 1. (Currently Amended) A method of fabricating a holographic mask comprising the
2 steps of:
- 3 a) providing an illumination source for generating a coherent illumination
4 beam directed along an axis;
- 5 b) providing a non-opaque object mask having substantially planar region
6 capable of transmitting a portion of said illumination beam as undiffracted
7 reference wavefronts, and having one or more substantially transparent
8 elements for creating overlapping object wavefronts when said
9 illumination beam is incident thereon;
- 10 c) disposing said object mask in said illumination beam;
- 11 d) providing a holographic recording medium in said illumination beam in
12 line optically with said object mask, wherein said holographic recording
13 medium has a central region;
- 14 e) illuminating said object mask with said illumination beam, wherein said
15 illumination beam directed along said axis causes said object mask to
16 allow undiffracted reference wavefronts to pass therethrough, wherein said
17 object mask does not shadow said central region of said holographic
18 recording medium from said undiffracted reference wavefronts, and
19 wherein said illumination beam directed along said axis causes said one or
20 more substantially transparent elements to create object wavefronts which
21 interact with said undiffracted reference wavefronts to create an
22 interference pattern; and

23 f) recording said interference pattern in at least said central region of said
24 holographic recording medium.

1 2. (Previously presented) A method of fabricating a holographic mask according to
2 claim 1, wherein said one or more substantially transparent elements are selected
3 from the group of substantially transparent elements consisting of a phase-altering
4 element, a scattering element, a refracting element, and a diffracting element.

1 3. (Previously presented) A method of fabricating a holographic mask according to
2 claim 1, wherein said step e) involves scanning said illumination beam over said
3 object mask during said recording of said interference pattern.

4. (Cancel)

1 5. (Previously presented) A method of fabricating a holographic mask according to
2 claim 1, wherein said at least one or more substantially transparent elements
3 comprise an array of substantially transparent elements.

- 1 6-19. Cancel
- 2 20. (Previously presented) A method of fabricating a holographic mask as in one of
3 claims 2, 7, 12 or 17, wherein said one or more substantially transparent elements
4 are phase-altering elements which are indentations in said object mask.
- 1 21. (Withdrawn) A method of fabricating a holographic mask as in one of claims 2, 7,
2 12 or 17, wherein said one or more said phase-altering elements are islands of
3 transparent material.
- 1 22. (Withdrawn) A method of fabricating a holographic mask as in one of claims 2, 7,
2 12 or 17, wherein said one or more scattering elements are diffusers.
- 1 23. (Withdrawn) A method of fabricating a holographic mask as in one of claims 2, 7,
2 12 or 17, wherein said one or more scattering elements has a preferred
3 directionality.
- 1 24. (Withdrawn) A method of fabricating a holographic mask as in one of claims 2, 7,
2 12 or 17, wherein said one or more refracting elements are lenslets.
- 1 25. (Withdrawn) A method of fabricating a holographic mask as in one of claims 2, 7,
2 12 or 17, wherein said one or more diffracting elements are gratings.
- 1 26. (Withdrawn) A method of fabricating a holographic mask as in one of claims 2, 7,
2 12 or 17 wherein said one or more diffracting elements are holograms.

27-69 (Canceled)

1 70. (Previously presented) A method as recited in claim 1, wherein said recording step
2 (f) includes recording said interference pattern in said holographic recording
3 medium without "clipping" or "bottoming out" of the interference pattern.

1 71. (Previously presented) A method as recited in claim 70, wherein said recording
2 step (f) includes controlling exposure time, intensity of illumination, and
3 developing procedure to avoid said "clipping" or said "bottoming out."

1 72. (Previously presented) A method as recited in claim 1, further comprising the step
2 of transferring said recording of said interference pattern to a durable substrate
3 provide a durable holographic mask.

1 73. (Previously presented) A method as recited in claim 1, wherein in said providing
2 step (b) said non opaque object mask has a semi-transparent layer with an optical
3 density between 0.1 and 5.0.

1 74. (Previously presented) A method as recited in claim 1, wherein in said
2 illuminating step (e) said reference wavefronts and said object wavefronts have
3 beam intensity ratio between 0.1:1 and 100:1.

1 75. (Previously presented) A method as recited in claim 1, wherein said recording step
2 (f) involves recording said interference pattern in said holographic recording
3 medium so as to create a substantially continuous diffracting region over said
4 holographic recording medium.

1 76. (Previously presented) A method as recited in claim 1, wherein said providing a
2 non-opaque mask step (b) comprises the step of photolithgraphically defining
3 regions on a substrate and etching said regions to provide indentations, islands
4 scattering elements, lenslets, or grating elements for providing said substantially
5 transparent elements.

1 77. (Canceled)

2 78. (Previously presented) A method as recited in claim 73, wherein said recording
3 step (f) includes controlling exposure time, intensity of illumination, and
developing procedure to avoid said "clipping" or said "bottoming out."

1 79-80. (Canceled)

2 81. (Withdrawn) A method as recited in claim 76, wherein said recording step (f)
3 includes controlling exposure time, intensity of illumination, and developing
4 procedure to avoid said "clipping" or said "bottoming out."

1 82-89. (Canceled)

2 90. (Previously presented) A method as recited in claim 72, wherein said recording of
3 said interference pattern overlies said durable substrate and wherein said step of
4 transferring said recording of said interference pattern to a durable substrate
5 involves etching said durable substrate as masked by said overlying recording of
6 said interference pattern.

1 91. (Previously presented) A method of fabricating a holographic mask according to
2 claim 73, wherein said semi-transparent layer is chrome.